

## ABSTRACT OF THE DISCLOSURE

Inorganic fullerene-like (IF) nanoparticles of metal chalcogenides, particularly molybdenum sulphide, including one or more layers of desired sizes and shapes, e.g., spheres, sphere-like, nanotubes and polyhedral shapes, are manufactured by sonoelectrochemical liquid-phase synthesis comprising: (a) dissolving in a suitable solvent: (i) a least one compound of said metal and at least one compound of said chalcogen, or (ii) at least one said chalcogen-containing said metal compound; (b) immersing an electrically conductive ultrasonic probe in the solution obtained in (a); (c) electrically connecting the ultrasonic probe, which operates as an electrode, to one terminal of an electric power supply, and the other terminal of said electric power supply is connected to a counter electrode; (d) applying an ultrasonic signal to said ultrasonic probe electrode and an electric voltage to both the ultrasonic probe electrode and the counter electrode; and (e) recovering the IF-metal chalcogenide structures that precipitated in step (d).